

REMARKS

Claims 1, and 3-10 are pending. The support to the amendment to Claim 1 is found in Example 1 on p.16, and canceled claim 2. No new matter is added.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kihara et al.(6,627,671) in view of GB-1,204,230. (November 5, 2009; Office Action, page 2)

The claimed invention as now amended is chemically different as well as *unexpected* from the combination of the cited art for at least the following reasons:

No disclosure in GB-'230 suggests to use Mixture (A) to the claimed polyol composition (1) for a two-component curable abrasive foam. GB-'230 discloses that an amine curing agent is a mixture containing diamines, triamines and higher polyamines in varying proportions (p.1 lines 69-72), which are obtained from the reaction of 2-chloroaniline, 2-methylaniline or aniline and formaldehyde and discloses the specific amine curing agents in Examples 1, 2 and 3, which are obtained from the reaction of 2-chloroaniline and formaldehyde with the ratio of 1.7:1.0, 1.5:1.0 and 1.35:1.0, respectively. The products of Examples 1, 2 and 3 have average molecular weight of 316, 333 and 367, respectively; and Examples 2 and 3 have a Brookfield viscosity of 4350 cps. at 50 °C, and 1270 cps. at 75°C, respectively.

On the other hand, the Applicant calculates the average molecular weight of Mixture (A), when binuclear compound content is 70% and trinuclear compound content is 20% and tetranuclear compound content is 10%, as 322, which is larger than that of Example 1 of GB-230, and smaller than that of Examples 2 and 3. In addition, Mixture (A) of the claimed invention is solid at room temperature, and is melted and becomes liquid at 80°C or lower, so no viscosity can be measured. Even if the average molecular weights of the products in Examples 2 and 3 of GB-230 may be similar as the average molecular weights of the Mixture (A) of the claimed invention, *they are different compositions because the properties of viscosity are different.*

GB-230 never discloses the contents of the binuclear compound, trinuclear compound and tetranuclear compound. GB-230 uses the resulting mixture product almost directly. Moreover, GB-230 discloses the Examples 1, 2 and 3 in parallel. Accordingly, GB-230 never suggests that an

amine curing agent containing 50 to 70% by weight of a binuclear compound, 20 to 40% by weight of a trinuclear compound, and 5 to 10% by weight of a tetranuclear or higher compound is useful in the claimed polyol composition (1) for a two-component curable abrasive foam.

Neither each of Kihara and GB-230, nor the combination of them discloses or suggests the claimed polyol composition (1) for a two-component curable abrasive foam recited in claim 1. On a similar technical basis as this, the corresponding foreign applications have been granted in Japan, China and Korea.

Claim 1 is further amended as "the weight ratio of (A) to (B) ((A)/(B)) stands at 40/60 to 60/40", according to Example 1 and Table 1. As shown in following TABLE A below, according to Table 1 of the present application, concerning the Elapsed Time "3 months", when content of (A) is "40%" (the weight ratio of A to B: 40/60), Examples 1 and 2 show "A: transparent, pale brown solution"; on the other hand, Comparative Examples 1 ~3 show "C: precipitates such as MBOCA." When content of (A) is "30%", all of Examples 1 and 2 and Comparative Examples 1 ~3 show "A: transparent, pale brown solution".

Therefore, the weight ratio of A to B: 40/60 is a critical value to show the *unexpected effect* of the invention recited in currently amended claim 1.

Concerning the binuclear compound content in polyaminochlorophenylmethane mixture (A) (hereinafter "Mixture (A)), at the condition that the Elapsed Time is "3 months" and the content of (A) is 40% ~60%, when binuclear compound content is 65%, Examples 1 and 2 show "A: transparent, pale brown solution"; on the other hand, when binuclear compound content is 82%, Comparative Example 1 shows "C: precipitates such as MBOCA".

Therefore, Mixture (A) has a critical value 70% of binuclear compound, to show the *unexpected effect* of the invention recited in currently amended claim 1.

TABLE A

| | Composition of (A) Polyaminochlorophenylmethane compound | (B) Polyol | Elapsed Time | Content of (A) (% by weight) | | | |
|--------------------------|---|-----------------|-----------------|---------------------------------|-----|-----|-----|
| | | | | 30% | 40% | 50% | 60% |
| Example 1 | binuclear compound 65% trinuclear compound 28% tetranuclear compound 7% | PTMG1000 | 3 months | A | A | A | A |
| Comparative Example 1 | binuclear compound 82% trinuclear compound 15% tetranuclear compound 3% | PTMG1000 | 3 months | A | C | C | C |
| Comparative Example 2 | MBOCA as binuclear compound 98%< trinuclear compound 1%> tetranuclear compound 1%> | PTMG1000 | 3 months | A | C | C | C |
| Example 2 | binuclear compound 65% trinuclear compound 28% tetranuclear compound 7% | PTMG1000 DEG | 3 months | A | A | A | A |
| Comparative Example 3 | MBOCA as binuclear compound 98%< trinuclear compound 1%> tetranuclear compound 1%> | PTMG1000 DEG | 3 months | A | C | C | C |

(Criteria) A: transparent, pale brown solution B: hazy C: precipitates such as MBOCA

The polyaminochlorophenylmethane mixture (A) (hereinafter “Mixture (A)”) recited in the currently amended claim 1, is solid at room temperature, and is melted and becomes liquid at 80°C or lower. After adding claimed Mixture (A) into the polyol (B) at the weight ratio of **40/60** to 60/40, it is **unexpected** that the resulting polyol compositions (1) of the present invention containing Mixture (A) and polyol (B) are transparent and pale brown solutions, and exhibit excellent dissolution stability over a long period of time (three months), as shown in TABLE A. In contrast, in Comparative Examples 1, 2 and 3 each containing a higher content of MBOCA, when the ratio (A/B) is at the weight ratio of **40/60** to 60/40, the compositions show hazy turbidity in early stages and precipitation typically of MBOCA and exhibit deteriorated dissolution stability.

Accordingly, neither each of Kihara and GB-230, nor the combination of them discloses or suggests the claimed polyol composition (1) for a two-component curable abrasive foam recited in claim 1.

These results empirically show that the invention as now claimed is not only chemically

different, but because the claimed invention is not suggested by the combination, no logical *prima facie* rejection of obviousness can be made on Kihara and GB-230 alone. Therefore, the rejection of currently amended claim 1 should be reconsidered and withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

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Respectfully submitted,

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